

Appl. No. : 10/840,192
Filed : May 6, 2004

AMENDMENTS TO THE CLAIMS

1. **(Original)** A production method for a nanomaterial comprising the steps of:
 - forming a template on a solid substrate using a metal oxide nanomaterial
 - forming composition comprising an organic compound with a phenolic hydroxyl group and a molecular weight of at least 500,
 - forming a metal oxide layer on said template, and
 - removing said template to generate a metal oxide nanostructure.
2. **(Original)** A production method for a nanomaterial according to claim 1, wherein in said step for forming said template, a radiation sensitive composition is used as said metal oxide nanomaterial forming composition, and patterning is conducted using a lithography method.
3. **(Original)** A production method for a nanomaterial according to claim 1, wherein in said step for generating said metal oxide nanostructure, said solid substrate is removed following removal of said template.
4. **(Original)** A production method for a nanomaterial according to claim 1, wherein in said step for generating said metal oxide nanostructure, said solid substrate is removed prior to removal of said template.

5. **(Original)** A production method for a nanomaterial according to claim 1, wherein in said step for generating said metal oxide nanostructure, during removal of said template, an integrated body containing both said template and said solid substrate is removed.

6. **(Original)** A production method for a nanomaterial according to claim 1, further comprising a step for coating at least a portion of said metal oxide nanostructure with an organic compound layer.

7. **(Original)** A production method for a nanomaterial according to claim 1, wherein during said step for forming said metal oxide layer, a step (a), in which a material containing a metal compound with a functional group that undergoes a condensation reaction with a hydroxyl group, and a functional group that can generate a hydroxyl group through hydrolysis, is brought in contact with either said template surface or a surface of a metal oxide layer formed on top of said template, and a step (b), which is conducted after said step (a) and in which said metal compound is hydrolyzed to form a metal oxide layer, are each performed at least once.

8. **(Original)** A production method for a nanomaterial according to claim 7, wherein in said step (a), said template surface is first subjected to preliminary oxygen plasma treatment.

9. (Original) A production method for a nanomaterial according to claim 1, wherein a method for removing said template uses at least one treatment method selected from a group consisting of plasma treatment, ozone oxidation, elution and calcination.

10. (Original) A production method for a nanomaterial according to claim 1, wherein said organic compound has a molecular weight greater than 2000, and contains at least 0.2 equivalents of phenolic hydroxyl groups.

11. (Original) A production method for a nanomaterial according to claim 1, wherein said organic compound is a resin with a weight average molecular weight of 2000 to 30,000, comprising a unit containing a phenolic hydroxyl group and a unit containing an acid dissociable, dissolution inhibiting group, and said unit containing a phenolic hydroxyl group accounts for at least 50 mol% of said resin.

12. (Original) A production method for a nanomaterial according to claim 11, wherein said unit containing a phenolic hydroxyl group is a unit derived from hydroxystyrene.

13-22. (Canceled)

23. (New) A production method for a nanomaterial according to claim 1, wherein the metal oxide nanomaterial forming composition is a radiation sensitive composition.

24. (New) A production method for a nanomaterial according to claim 1, wherein said organic compound contains an acid dissociable, dissolution inhibiting group in addition to said phenolic hydroxyl group, and wherein said composition further comprises an acid generator.

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25. (New) A nanomaterial obtained by the production method according to claim 1.

26. (New) A nanomaterial obtained by the production method according to claims 3, 4 or 5.